

Application Serial No. 10/005,052
Reply to Office Action dated May 19, 2005

**EXPEDITED HANDLING PROCEDURE
PURSUANT TO 37 C.F.R. § 1.116**

REMARKS/ARGUMENTS

The present application includes independent claims 1, 10 and 41. Independent claim 1 is directed to a method of treating a grain based product bran by reacting the bran, which has a native ferulic acid concentration, with 0.1 to 1 parts ozone per 100 parts bran to produce treated bran having a reduced ferulic acid finished concentration of less than 30 ppm. Method claim 10 is more specific in requiring a method of treating a grain based product bran by reacting the bran with ozone to reduce a ferulic acid concentration, acidifying the bran to reduce the pH to about 4 to 6 prior to treating with ozone, treating the bran with a chelating agent prior to acidifying and blanching the treated bran. Finally, claim 41 represents a grain product claim requiring a cereal bran to have a ferulic acid concentration of less than 30 ppm and an elevated concentration of vanillin.

In the outstanding Office Action, claims 1-9 and 16-48 have been rejected as being obvious in view of U.S. Patent No. 4,844,924 issued to Stanley and claims 1-3, 6-21, 23-26, 33, 34 and 36-39 stand rejected as being anticipated by General Mills World Patent Publication WO 02/21936. With respect to the Stanley patent, there is absolutely no mention of using ozone to reduce ferulic acid levels. At best, the patent teaches to provide color stability through conventional oxidated bleaching agents, such as peroxide, chlorites, peracids and ozone. Even if one were to argue that treating a grain-based bran with ozone would result in a reduced ferulic acid concentration, there is certainly no teaching to react the bran with the specifically claimed ratio of ozone to parts of bran or to result in the particular ferulic acid finished concentration set forth in independent claim 1. As Stanley does not disclose any ferulic acid level or even mentions vanillin at all, it is considered that this patent does not address the particular limitations of product claim 41. The amount of ozone used in the present application, i.e., 0.1-1 parts ozone per 100 parts bran, is critical to the desired result, which is reducing the ferulic acid to particular levels and/or providing the elevated concentration of vanillin. Too little ozone will not reduce

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the ferulic acid and too much will cause the oxygenation process to be driven so far that the desired vanillin will be destroyed and the resulting bran will have lower levels of vanillin. These features of the invention are highly emphasized in the present application, such as on page 14, line 20 through page 15, line 6. The Examiner states, "Applicant has not shown any unexpected results or criticality with the amount of ozone claimed" (see page 4, lines 1-2 of the Office Action). This statement is simply not true. The amount of ozone claimed is critical to the desired result, and Stanley does not disclose or suggest the specifically claimed amount of ozone. However, since the goal in Stanley is to bleach the bran, it is considered that significantly higher amounts of ozone must be used. Regardless, the Examiner has not shown any suggestion or motivation of the desirability of using the specifically claimed amount of oxygen, and without a proper teaching to this critical feature, it is respectfully submitted that the rejections based on Stanley should be withdrawn.

The Examiner states that it would have been obvious for one in Stanley to use other types of bran when desiring to bleach such bran products, it would have been an obvious matter of choice to pick any particle size, and it would have been obvious to determine the amount of ozone to be used for routine experimentation depending on the degree of bleaching desired and the amount of time at which bleaching is carried out. However, the Examiner has failed to show any suggestion or motivation to modify the Stanley reference. The C.A.F.C. has already ruled that modifying prior art without a suggestion of the desirability of the modification by the art is improper. Instead, it is necessary for the Examiner to provide prior art which would suggest modifications made in connection with obviousness-type rejections. The Examiner has stated that some of the features would be an obvious matter of choice. The burden is upon the Patent Office to supply the factual basis supporting such a rejection. It must be shown why a person skilled in the art would find it obvious to depart from the teachings of a reference when the issue is an obvious matter of choice. *Lipscombe's Walker on Patents*, Vol. 4, Section 12:14, page 45, citing *In Re Warner*, 379 F.2d 1011, 154 USPQ 173 (1967), *In Re*

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Bezonbes, 420 F2d 1070, 164 USPQ 387 (CCPA 1970). Simply stated, there is just no motivation to utilize the specific parts ozone to parts bran to achieve the particular ferulic acid finish concentration of claim 1 or to produce a grain product with a cereal bran having the specific ferulic acid concentration and elevated vanillin concentration of claim 41.

With respect to the application of the World Publication, which is owned by the assignee of the present application, the Examiner has relied on the ozone treatment disclosed on page 12, lines 28-29 for the amount (0.1-2% ozone) and the pH (4.5) required. While these parameters fall within the ranges claimed, the cited ozone treatment in the World Publication is actually a post treatment for further bleaching of bran that has already undergone a primary bleaching treatment. The World Publication holds that bleaching with oxidants at a high pH (as in the primary bleaching treatment) causes ferulic acid to become more available and other antioxidant components, such as vanillin, to be oxidized and no longer available. See page 15, line 28 through page 16, line 10. If the vanillin is oxidized by the first bleaching treatment, it would not be possible that there be an increase in vanillin caused by the subsequent treatment relied upon by the Examiner. Using ozone as a subsequent bleaching treatment as taught in this World Publication actually teaches away from the present invention because the ferulic acid levels are reduced too much and the oxygenation process is driven so far that the desirable vanillin is destroyed. Therefore, the bran produced in accordance with the WO publication have lowered levels of vanillin.

In addition, the World Publication does not disclose the particular range of parts ozone to parts bran specified in independent claim 1 for producing treated bran having a ferulic acid finish concentration of less than 30 ppm. With respect to claim 10, this claim specifically requires acidifying the bran prior to subjecting it to ozone, wherein the World Publication discusses subjecting bran to a bleaching process in the presence of an alkaline, again teaching away from the claimed invention. Claim 10 also specifies that

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the blanching process not only inactivates catalase, but also peroxidase and zomatic systems which is not discussed in the World Publication. Given the lack of at least these features, it is respectfully submitted to the Examiner that the World Publication cannot be properly relied upon to address each and every claim limitation.

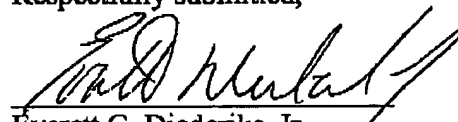
On page 4 of the Office Action, the Examiner states that the World Publication discloses that ferulic acid is present in reduced amounts in the treated bran as compared with native bran. However, the Examiner is referring to page 16, lines 2-6 which actually disclose that bleaching bran with oxidants at a high pH (in excess of about 9) causes the lignin portion of the cell wall to degrade, which may cause the ferulic acid to become more available, i.e., increasing the antioxidant activity. This alkaline treatment also oxidizes other components, such as vanillin, such that they are no longer available. While it is stated that ferulic acid may be present in reduced amounts as compared to native bran, this is disclosed in association with alkaline treatment with hydrogen peroxide at a high pH. There is no mention of the use of ozone to reduce the amounts of ferulic acid or increase the levels of vanillin. On page 5 of the Office Action, the Examiner also states that the amount of ozone and the starting material is the same. Clearly, this is not the case. The World Publication uses ozone as a post-treatment after bleaching of bran. The present claimed invention uses ozone in a specific, critical amount required to reduce the ferulic acid of bran having a native level of ferulic acid. The World Publication simply does not disclose this claimed feature of the invention and, again, certainly teaches away from utilizing ozone in a manner which will enable the enhanced concentration of vanillin.

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Based on the above remarks, withdrawal of the rejections made, allowance of the claims and passage of the application to issue are respectfully requested. If the Examiner should have any additional concerns regarding the allowance of this application, the Examiner is cordially invited to contact the undersigned at the number provided below to establish such an interview in order to further expedite the prosecution of the application.

Respectfully submitted,



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